

PATENT ABSTRACTS OF JAPAN

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(54) COMMUNICATION TERMINAL

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a communication terminal that can use a recording sheet with a size not corresponding to a received image and print out the received image on the sheet even when a recording sheet with a size corresponding to the received image runs short at reception of images printed on both sides of an original.

SOLUTION: The communication terminal is provided with a line connection section 7 connected to a communication line 15, an image memory 4 that stores an image received via the communication line 15, and a recording section 12 that prints out an image in the image memory 4 on the recording sheet, and a control section 1 that records a plurality of received images on one side of the recording sheet when receiving images recorded on both sides of the original and records a plurality of other received images corresponding to a plurality of the received images on a 2nd side of the recording sheet.

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CLAIMS

[Claim(s)]

[Claim 1]A communication terminal device characterized by having a control section on which two or more of other reception pictures corresponding to a reception picture of the above-mentioned plurality [page / 2nd] of the record paper concerned are made to

record while making a reception picture of plurality [page / 1st] of a record paper record when a double-sided picture is both received as it is characterized by comprising the following.

A line connection part linked to a communication line.

An image memory which stores a picture received via a communication line.

The Records Department which records a picture in an image memory on a record paper.

[Claim 2]The communication terminal device according to claim 1, wherein a record section of each reception picture in the 1st page and a record section in the 2nd page of other reception pictures corresponding to the reception picture concerned correspond mutually.

[Claim 3]The communication terminal device according to claim 1, wherein two or more reception pictures recorded on the 1st page or the 2nd above-mentioned page contain a reception picture in which sizes differ.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the communication terminal device which has a function which transmits a picture through communication lines, such as a facsimile machine.

[0002]

[Description of the Prior Art]Conventionally, in the facsimile machine, the thing provided with the transmitting function of a double-sided picture is known. As everyone knows, when the transmitting function of this double-sided picture specifies double-sided recording with the device of the transmitting side and a picture is

transmitted, once storing a reception picture in an image memory with the device of a receiver, it is a function recorded on both sides of a record paper. Even if it does not specify a double-sided picture with the device of the transmitting side, it is also possible to set up record a reception picture on both sides of a record paper with the device of a receiver.

[0003]

[Problem(s) to be Solved by the Invention]However, since a reception picture cannot be recorded until a record paper is supplied when the record paper of the size corresponding to a reception picture is off with the device of the receiver at the time of reception of a double-sided picture. As a result of a time lag's arising in recording processing or accumulating an unrecorded picture in an image memory one by one, the capacity lacks of the image memory arose and it had problems, like reception of a new picture becomes impossible.

[0004]

[Means for Solving the Problem]An object of this invention is to provide a communication terminal device which can record a reception picture using a paper of other sizes, even if a record paper of size corresponding to a reception picture is off at the time of reception of a double-sided picture, in order to solve aforementioned SUBJECT.

[0005]Therefore, a communication terminal device of claim 1 of this invention, While having a line connection part linked to a communication line, an image memory which stores a picture received via a communication line, and the Records Department which records a picture in an image memory on a record paper, When a double-sided picture was received, while making a reception picture of plurality [page / 1st] of a record paper record, it had a control section on which two or more of other reception pictures corresponding to a reception picture of the above-mentioned plurality [page / 2nd] of the record paper concerned are made to record.

[0006]A record section of each reception picture [in / on composition of claim 1 and / in a communication terminal device of claim 2 / the 1st page] and a record section in the 2nd page of other reception pictures corresponding to the reception picture concerned correspond mutually.

[0007]Two or more reception pictures in which a communication terminal device of claim 3 is recorded on the 1st page or the 2nd above-mentioned page in composition of claim 1 contain a reception picture in which sizes differ.

[0008]

[Embodiment of the Invention]Hereafter, an embodiment of the invention is described

based on a drawing. As shown in drawing 1, the facsimile machine 14 as a communication terminal device, The control section 1 which consists of CPUs (central processing unit) etc., ROM(Read Only Memory) 2, RAM(Random Access Memory) 3, the image memory 4, the codec 5, the modem 6, NCU (Network.) Control Unit7 (line connection part), the indicator 8, the final controlling element 10, the reading section 11, and the Records Department 12 are mutually connected by the bus line 13.

[0009]The control program for [], such as a transceiver procedure of a facsimile,] controlling the facsimile machine 14 whole is beforehand memorized by ROM2. When a double-sided picture is received to this control program, while making it compound and record two or more reception pictures on the surface (the 1st page) of a record paper, the procedure on which the rear face (the 2nd page) of the record paper concerned is made to compound and record two or more of other reception pictures corresponding to two or more above-mentioned reception pictures is included in it. On the other hand, the transmission speed of the various data 6 required for control by the control section 1, for example, a modem, etc. are stored temporarily RAM3. The page memory 3a used for memory of the picture which should be recorded on one side of a record paper is formed in the partial area of RAM3 when compounding a described image etc.

[0010]The image memory 4 consists of RAM etc., it is read by the below-mentioned reading section 11, and the image data after being coded by the codec 5 is memorized. The image memory 4 is provided with the storage capacity which can carry out part grade accumulation for several 10 pages of a manuscript thru/or several 100 pages of the coded image data.

[0011]The codec 5 has a role which decodes the coded image data which was read by the reading section 11, and which coded the image data which should be transmitted one by one, and was received from the partner point terminal. Transmitted and received data gets over [strange], and the modem 6 recovers the voice band signal received from the above-mentioned partner point terminal via NCU7 from the communication line 15 to a digital signal, while send data is specifically modulated to a voice band signal and sending out to the communication lines 15, such as a dial-up line network, via NCU7.

[0012]NCU7 is provided with the function to detect the function and arrival which send out the dial pulse according to the facsimile number of the called station while it controls connection between the communication line 15 and this facsimile machine 14. Although not illustrated, the indicator 8 consists of liquid crystal display elements, for example, and two or more keys, such as a ten key and a start key, are provided in the final controlling element 10.

[0013]The reading section 11 is provided with the manuscript automatic feeder which

can supply the manuscript of two or more sheets to a reader one by one, and the reader which consists of a line sensor, CCD (Charge Coupled Device), etc., and reads the manuscript for facsimile transmission. The Records Department 12 has two or more paper cassettes, printers, such as an electrophotographing system or an inkjet method, etc., and records the image data which received from the partner point on one side or both sides of a record paper (print).

[0014]In the above-mentioned composition, at the time of facsimile transmission. After being read by the reading section 11, being coded by the codec 5 and accumulating the picture (image data) of a manuscript in the image memory 4 with operation of an unillustrated start key, it becomes irregular with the modem 6 and is transmitted to a partner point device through the communication line 15 from NCU7.

[0015]After the received image gets over with the modem 6 and is accumulated in the image memory 4 at the time of facsimile reception, it is decoded by the codec 5 and printed by the Records Department 12. Although the above-mentioned facsimile machine 14 also has a duplication function and does not explain it in full detail, after being coded by the codec 5 and accumulating the image read by the image reading part 11 in the image memory 4 at the time of a copy, it is decoded again and printed at the Records Department 12.

[0016]Next, it explains concretely per [in the Records Department 12 at the time of reception of a double-sided picture] record method. When the double-sided picture of A4R size (R may be attached and shown after size in the case of an oblong picture or record paper) is received as shown in (a) among drawing 2 for example, it is the foundations which are recorded on both sides of the record paper of A4R size.

[0017]However, when the record paper of A4R size corresponding to the time of reception of the double-sided picture of A4R size does not exist but the record paper of A3 size which has a twice as many size as this exists, as shown in (b) among drawing 2, a reception picture can be recorded on both sides of the record paper of A3 size. In that case, if 2 or more sets of double-sided pictures of A4R size are received, a record paper can be efficiently used by compounding respectively the surface picture addressed to 2 set (surface pictures 1 and 2 of a figure), and the back surface image addressed to 2 set (back surface images 1 and 2 of a figure), and recording on both sides of the record paper of A3 size.

[0018]When the record paper of A3 size does not exist, either but the record paper of B4 size exists also in the record paper of A4R size at the time of reception of the double-sided picture of A4R size, as shown in (c) among the figure. The surface and the back surface image which were compounded among drawing 2 as shown in (b) can be

respectively reduced for predetermined magnification, and it can also record on both sides of the record paper of B4 size.

[0019]As shown in (d) among drawing 2, it is also possible to combine respectively two or more sets of double-sided pictures from which size or a direction differs respectively, for example, A4, and the double-sided picture of A5R by the surface and rear-face side, and to record them on both sides of the record paper of one sheet. In that case, it is preferred for the surface picture of each size, and the corresponding back surface image of size to record on the corresponding field by the side of the surface of a record paper and a rear face. If it does in this way, after double-sided recording, for each double-sided picture of every, it can separate with scissors and can use.

[0020]Among drawing 2, it is preferred to divide into the boundary position of the picture which adjoins in (b) thru/or (d), and to print a line, and the starting pause line is expedient, when separating a record paper for every double-sided picture. Although the state where the pause line was printed to both sides of the record paper is shown, drawing 2 is usually enough as a pause line, if it prints only on one side of a record paper.

[0021]It explains focusing on the procedure which combines two or more sets of double-sided pictures, and records the details of the control procedure by the control section 1 in case the facsimile machine 14 receives a double-sided picture on the record paper of one sheet hereafter. Below, as shown in (b) and (c) among drawing 2, it explains focusing on the case where combine the pictures of the same size and it records on both sides of a record paper, but this invention is included in the range, also when combining the pictures of different size among drawing 2 as shown in (d), and recording them on the same record paper.

[0022]As shown in the flow chart of drawing 3, the control section 1 judges first whether the double-sided picture was received (S1), and if it has not received, it ends processing. If the double-sided picture is received, it will be judged whether it is A3 width (S2). In a facsimile machine, since a reception picture is distinguished with a width dimension, the record paper of A4R size is also usually contained in A3 width besides the record paper of A3 size.

[0023]If a reception picture is [S2] A3 width, after performing A3 width processing mentioned later (S3), it is judged whether there is any next page (S4). Processing will be ended if it will return to S2 and the same processing will be repeated, if there is a next page, and there is no next page. On the other hand, it judges whether a reception picture is B4 width if the double-sided picture received by S2 is not A3 width (S5), and if it is B4 width, it will progress to said S4, after performing the below-mentioned B4

width processing (S6). Since a reception picture is A4 width if a reception picture is not B4 width in S5, it progresses to said S4, after performing the below-mentioned A4 width processing (S7).

[0024]Next, the details of A3 width processing in S2 are explained, referring to the flow chart of drawing 4. When the double-sided picture of A3 width is received, both the control sections 1 judge first whether the length of the surface and a rear face is below A4 width (S10). If neither of length of the surface and a rear face is below A4 width, since it is A3 size, after the received picture performs the usual double-sided print using the record paper of A3 size by S11, it will eliminate the picture of the page printed by S14 from the image memory 4, and will end processing. Here, the usual double-sided print is not accompanied by the processing which combines two or more pictures and is printed at the surface or the rear face of a record paper, but means printing the picture addressed to one at the surface and the rear face of a record paper.

[0025]If both the length of the surface and a rear face is below A4 width in S10, the received picture, Since it is A4 size (A4R size oblong in practice), then, the control section 1, If it judges whether the record paper of A4 size exists (S12) and exists in one which is not illustrated of paper cassettes, it will progress to said S14, after performing the usual double-sided print using the record paper of A4 size (S13).

[0026]On the other hand, if the record paper of A4 size does not exist by S12, it is judged whether the following [A4 width] have both the length of the surface and a rear face by A3 width after the next page of a reception picture (S15). Here, since it considers for convenience that the pair of the surface picture which constitutes a double-sided picture, and a back surface image is 1 page, it means as the opposite of the next surface and a back surface image or subsequent ones after a next page.

[0027]If the following [A4 width] have both the length of the surface and a rear face by A3 width by S15 after a next page, then, the control section 1, If it judges whether there is any record paper of A3 (S16) and there is a record paper of A3, after making the record paper into A3 and setting magnification as actual size (S17), an identical width compositing process (S18) will be performed, and it will progress to said S14 after that. Although an identical width compositing process is explained in full detail behind, it is a compositing process as shown in (b) among drawing 2.

[0028]By S16, if there is no record paper of A3, then if it judges whether there is any record paper of B4 (S19) and there is a record paper of B4, after making the record paper into B4 and setting magnification as the reduction to B4 from A3 (S20), it will progress to S18 and said identical width compositing process will be performed. In this case, among said drawing 2, as shown in (c), a double-sided print is carried out. Since

the record-paper-less error (S21) has arisen if there is no record paper of B4 S19, that is displayed on an indicator and processing is ended, for example.

[0029]By S15, if the following [A4 width] do not have both the length of the surface and a rear face by A3 width after a next page, said identical width compositing process cannot be performed. In this case, it progresses to S22, and it progresses to said S14, after making the record paper into A3, setting magnification as actual size (S23) and performing half print processing (S26), if it judges whether there is any record paper of A3 and there is a record paper of A3. Although this half print processing is explained in full detail below, if it says simply, it will be in the state which printed only the A4R surface picture 1 and the A4R back surface image 1 in (b) among drawing 2, and made blank the portions of the A4R surface picture 2 and the A4R back surface image 2.

[0030]It progresses to said S14, after making the record paper into B4, setting magnification as the reduction to B4 from A3 (S25) and performing half print processing (S26), if it judges whether there is any record paper of B4 (S24) and there is a record paper of B4 by S22, if there is no record paper of A3 next. The half print processing in this case is in the state which printed only the A4R surface reduction image 1 and A4R rear-face reduction image 1 in (c) among drawing 2, and made blank the portions of the A4R surface reduction image 2 and A4R rear-face reduction image 2.

[0031]B4 width processing in [S6] drawing 3 is the same procedure as said A3 width processing fundamentally except becoming smaller at a time the 1 surroundings than the case where the size of the record paper to be used is A3 width processing of drawing 4, as shown in the flow chart of drawing 5. For example, although it has judged whether the width of the surface of a double-sided picture and the rear face which were received is below B5 width in S10a, if a judgment is yes and reception pictures are B5 size (specifically B5R size) and no, a reception picture will serve as B4 size. Here, in the flow chart of drawing 5, the suffix "a" is given to the number of the step to which the flow chart of drawing 4 corresponds, and detailed explanation is omitted.

[0032]However, since a corresponding step does not exist in the flow chart of drawing 4, each step of S27 thru/or S30 in drawing 5 is hereafter explained per these steps. Since a reception picture is B4 size if the width of the surface of a double-sided picture and the rear face which were received by S10a is not below B5 width, in S27, it is judged whether there is any record paper below B4 size. If there is a record paper below B4 size, it will progress to S11a and the usual double-sided print will be performed. In this case, if the size of a record paper is B4, it will print by actual size, and if it is a record paper below A4, it will reduce and print for suitable magnification.

[0033]If it judges whether the control section 1 has a record paper of A3 size if there is no record paper below B4 size S27 (S28) and there is no record paper of A3 size, it will become a record-paper-less error (S21a). If there is a record paper of A3 size, it will be judged whether a record paper is made into A3, and magnification is set as the reduction to A4 from B4 (S29), then there is any page of B4 width after a next page (S30). If there is no page of B4 width after a next page while progressing to S18a and performing an identical width compositing process, if there is a page of B4 width after a next page, it will progress to S26a and half print processing will be performed.

[0034]The details of A4 width processing in [S7] drawing 3 are shown in the flow chart of drawing 6. Here, since it is only that the 1 surroundings become small at a time compared with the case of B4 width processing of drawing 5, the record paper to be used replaces the suffix "a" of each step in drawing 5 with "b", and omits detailed explanation. However, since a step [be / it / under / drawing 5 / correspondence] does not exist, S31 and S32 of drawing 6 are explained below.

[0035]When the record paper below A4 size does not exist by S27b, the control section 1 judges whether there is any record paper of A3 size by S31, and if there is nothing, it will serve as a judgment of whether there is any record paper of B4 size by S28b. If there is a record paper of A3 size, a record paper will be made into A3, magnification will be set as actual size (S32), and it will progress to S30b.

[0036]Next, each flow chart below drawing 7 explains the details of the identical width compositing process in S18 grade of drawing 4. In [S41] drawing 7, the control section 1 judges whether the record paper which should be used is below A4 size.

[0037]Although it needs to be oblong to judge here whether a record paper is below A4 size, it may use it with the case where the record paper below A4 size is longwise, and it is used and it is necessary to change the following contents of processing according to direction of a record paper. It is because it is possible only when it is longwise and usually uses it about the record paper of larger B4 than A4 size and A3 size. If the decision result of S41 is yes, it will be judged whether there is any longwise record paper (S42).

[0038]It is judged whether by S42, if there is a longwise record paper next, those with a binding margin are set up and the binding position (position of a binding margin) is specified (S43). And if the binding position is specified, it will be judged further whether it is setting out to separate (S44). It says being set as the state [setting out (detachable setting out) separated here] which the corresponding picture by the side of the surface and a rear face is printed on (b) thru/or (d) to a mutually corresponding field among drawing 2 as shown, and can be separated with scissors for every double-sided picture.

On the other hand, in setting out which is not separated, it is not indispensable to print the corresponding picture by the side of the surface and a rear face on a mutually corresponding field, and the following contents of processing are different by whether it is setting out to separate.

[0039]When it is setting out separated by S44, it judges whether a binding position is upper binding (S45), if a decision result is yes, it will progress to S51 in the flow chart of drawing 8 hereafter, and if the decision result of S45 is no, he will follow the control section 1 to S60 in drawing 8. If the decision result of S44 is no, it will progress into [S67] drawing 9 hereafter.

[0040]A record paper becomes oblong if the longwise record paper which is below A4 size does not exist in a paper cassette by S42. In this case, it progresses to S46 and judges whether there is any binding position specification, and if it is yes, it will be judged whether it is setting out to separate (S47). If it is not setting out which he will follow to S79 of drawing 10 hereafter, and will be separated if it is setting out to separate, it will progress to S96 of drawing 11 hereafter. When there is no binding position specification S46, it progresses to S80 of drawing 10.

[0041]By S41, if a record paper is not below A4 size, it will progress to S48 and it will be judged whether a reception picture is oblong. If the reception picture is oblong, it will progress to S43 and the same processing as the above will be performed. It is judged whether by S48, if the reception picture is longwise, it progresses to S49 and there is any binding position specification. If it is not setting out which he will follow to S113 of drawing 12 hereafter, and will be separated if there is binding position specification, then if it is setting out which judges whether the control section 1 is setting out to separate (S50), and is separated, it will progress to S146 of drawing 14 hereafter. When there is no binding position specification S49, it progresses to S114 of drawing 12.

[0042]Next, although it shifts to explanation of the detail flowchart of the identical width compositing process below drawing 8, an example of the concrete composition of the Records Department 12 of this facsimile machine 14 is explained before that based on drawing 16. The photo conductor 12a transferred in the record paper 16 after the Records Department 12 forms the toner image corresponding to a reception picture etc. in the surface, It has two or more paper cassettes 12b which accommodated the record paper 16 with which size differs from a direction respectively, the intermediate tray 12c which once accommodates the record paper 16 in the middle of a paper conveying path which met the arrow A at the time of double-sided recording, and whose picture by the side of the surface has been recorded, etc.

[0043]And conveying the record paper 16 along with the arrow B via the upper part of

the photo conductor 12a, record by the side of a rear face is performed, after reversing the rear surface of the record paper 16 to the photo conductor 12a. At the time of the record by the side of the surface of the record paper 16, the record paper 16 is conveyed considering the one end 16a side as a head, and the record paper 16 is conveyed considering the other end 16b side as a head at the time of the record by the side of a rear face so that clearly from drawing 16. Therefore, when the Records Department 12 of the composition of drawing 16 is used, unless 180 degrees of upper and lower sides of the picture of either a surface side or the rear-face side are rotated, a picture is mutually printed the state for upside down by the surface [of the record paper 16], and rear-face side.

[0044]Hereafter, if the decision result of S45 of said drawing 7 is upper binding when the detail flowchart of an identical width compositing process is explained, it will progress to S51 of drawing 8, and the processing which combines the double-sided picture of the identical width of two sheets in the suitable mode for upper binding, and is printed on both sides of the record paper of one sheet will be started. Below, since it is easy, the surface and the back surface image which constitute P1, P2, and the double-sided picture of the 2nd sheet for the surface which constitutes the double-sided picture of the 1st sheet, and a back surface image respectively are respectively called P3 and P4.

[0045]With the set-up reduction percentage, by upper doubling, in S51, stick the back surface image P2 of the 1st sheet on the upper half of the page memory 3a, and in S52. The picture which stuck the surface picture P3 of the 2nd sheet on the lower half of the page memory 3a by lower doubling with the set-up reduction percentage, thus was combined by S51 and S52 is printed on the surface side of the record paper 16 (S53). This print state is shown in (a) upper part among drawing 17.

[0046]Sticking the picture P2 on the upper half of the page memory 3a by upper doubling means facing printing the picture P2 on the field of the upper half by the side of the surface of the record paper 16, and providing a binding margin in the lower end side of the field of the above-mentioned upper half so that clearly from the figure.

[0047]Sticking the picture P3 on the lower half of the page memory 3a by lower doubling means facing printing the picture P3 on the field of the lower half by the side of the surface of the record paper 16, and providing a binding margin in the upper bed side of the field of the above-mentioned lower half. 1 time, i.e., actual size, is contained in the reduction percentage set [above-mentioned] up.

[0048]After reversing the rear surface of the record paper 16 whose surface side has been recorded in S54 of drawing 8, the picture P4 of the rear face of the 2nd sheet is

stuck on the upper half of the page memory 3a by upper doubling with the set-up reduction percentage S55. Then, it divides into the center position of the page memory 3a by S56 in a scanning direction (longitudinal direction of a figure), and a line is stuck. [0049]In S57, after printing the picture which stuck the surface picture P1 of the 1st sheet on the lower half of the page memory 3a by lower doubling with the set-up reduction percentage, thus was combined by S55 thru/or S57 on the rear-face side of the record paper 16 (S58), the record paper 16 is discharged (S59). The print state by the side of a rear face is shown in (a) bottom among drawing 17. the transportation direction of the record paper to the photo conductor [inside / of each corresponding figure which contains (a) among drawing 17] 12a at the time of the print by the side of the surface of a record paper, and a rear face -- if it puts in another way, the each arrow C shows the direction of a head of the page memory 3a. Each figure which the surface and the rear face of a record paper are made to correspond, and is shown shows the state where longitude (it is a sliding direction to space) was made to reverse a record paper.

[0050]Thus, what is necessary is to divide the record paper 16, to make it 2 chip boxes by a line, and just to form the binding hole H for binders in the binding margin part of the upper bed part as occasion demands, as shown in the left-hand side of (b) among drawing 17 when filing and using for an unillustrated binder the record paper 16 which carried out the double-sided print.

[0051]If 1/2 field of the record paper 16 with which the picture P1 was recorded is turned up from the state on the left-hand side of (b) to the up side among drawing 17. Since it will be in the state of the center of the said figure, and it will be in the state on the right-hand side of [the] a figure if the lower half of the record paper 16 with which the picture P3 was recorded from this state is turned up to the up side, when upper binding is used, the sliding direction of the picture of each page will gather. Among drawing 17, by (b), it shall use without separating the record paper 16, but the above-mentioned pause line may divide the record paper 16 into two up and down, and the binding hole H may be provided and used for the binding margin of each upper bed part.

[0052]When a decision result is no in [S45] drawing 7, a binding position serves as the left binding or right binding, and he follows it to S60 of drawing 8 in this case. The contents of processing in each step which results in S58 and S59 through S60 thru/or S66 of the following. Since just being shown in a flow chart is enough, here, Although not explained in full detail, as shown in (a), while each back surface image P2 of the 1st sheet and the 2nd sheet and P4 are compounded and it is printed on the surface side, it

will be in each surface picture P1 of the 1st sheet and the 2nd sheet, and the state where P3 was compounded and it was printed on the rear-face side, among drawing 18 at the record paper 16 discharged by S59.

[0053]In order to carry out flip vertical of each back surface image P4 of the 2nd sheet and the 1st sheet, and P2 by S60 and S61 in this case, the image composing P2 by the side of the surface, the image composing P1 by the side of P4 and a rear face, and the sliding direction of P3 will gather after double-sided recording. For example, what is necessary is to divide the record paper 16, and for a line to divide into two up and down, and just to form the binding hole H in the left end of P1, as shown in (b) among drawing 18 when filing to a binder by making a binding position into the left binding.

[0054]If it is not setting out separated in [S44] drawing 7, it will progress into [S67] drawing 9, and it will be judged whether a binding position is upper binding. If it is upper binding, processing which combines the double-sided picture of two sheets with identical width hereafter at each step which results in S58 and S59 through S68 thru/or S75, and is printed on both sides of the record paper 16 will be performed. In this case, the arrangement relationship of the picture on the record paper 16 after a double-sided print becomes as shown in (a) among drawing 19. When filing and using for a binder, as shown in the left-hand side of (b) among the figure, form the binding hole H in the binding margin of an upper bed part, and page delivery is faced. Among the figure, like the right of (b), what is necessary will be just to turn up the record paper 16 whole in an upper bed part, and direction of the picture by the side of the surface and a rear face will gather in the state where it filed to the binder.

[0055]On the other hand, if it is not upper binding in S67, since it is the left or right binding, it will progress to S76 and the left or the identical width compositing process for right binding will be performed at each step which results in S58 and S59 through S76 thru/or S78, and S71 thru/or S75. In this case, the arrangement relationship of the picture on the record paper 16 after a double-sided print becomes as shown in (a) among drawing 20. What is necessary is just to form the binding hole H in the left end of P1 and P2, if it is the left binding as shown in (b) among the figure for example, when filing and using for a binder.

[0056]If there is no longwise record paper S42 of drawing 7, an oblong record paper will be used, but if it judges whether the control section 1 has binding position specification (S46) and there is binding position specification, it will be judged whether it is detachable setting out (S47). If it is detachable setting out, it will progress to S79 of drawing 10, and the control section 1 will judge whether a binding position is upper binding.

[0057]If a binding position is upper binding next, as shown in (a) among drawing 21, the control section 1 will rotate 270 degrees of rear faces of the 1st sheet of the double-sided pictures of two sheets which should be combined with identical width with the set-up reduction percentage (actual size is included), and will be stuck on the left half of the page memory 3a by left doubling (S80). Then, 270 degrees of surfaces of the 2nd sheet are rotated with the set-up reduction percentage, and it sticks on the right half of the page memory 3a by right doubling (S81). Then, a record paper is reversed after printing the image composing in the above S80 and S81 on the surface of a record paper (S82) (S83).

[0058]Next, the surface picture of the 1st sheet and the back surface image of the 2nd sheet are compounded to the rear-face side of a record paper by S84 thru/or S86, and it prints with a record paper end line. What is necessary is just to form the binding hole H in an upper bed part in the state where rotated 90 degrees of record papers, and it was made 2 chip boxes, as shown in (b) among drawing 21 when filing and using it for a binder. Since the procedure of sending a page is the same as the case of (b) among drawing 17, it omits explanation. When there is no binding position specification S46 of drawing 7, it progresses to S80 of drawing 10, and an identical width compositing process is performed by upper binding treatment.

[0059]If it is not upper binding in S79, since it is the left or right binding, it will progress to S87 and an identical width compositing process will be hereafter performed in a procedure as S87 thru/or S93 showed to the flow chart. The state where the state after a print was shown in (a) among drawing 22, and separated along the pause line, for example, the binding hole H was formed in the left end of P1 is shown in the figure (b).

[0060]If it is not setting out detachable in [S47] drawing 7, it will progress to S96 of drawing 11, and the control section 1 will judge whether a binding position is upper binding. If it is upper binding, an identical width compositing process will be hereafter performed in a procedure as S97 thru/or S104 showed to the flow chart, and it will print on both sides of an oblong record paper. The state after this print is shown in (a) among drawing 23. Since the method (inside of drawing 23 (b)) of filing and using for a binder is the same as that of the case of (b) among drawing 19 after rotating 90 degrees of record papers after a print, explanation is omitted.

[0061]If it is not upper binding in S96, it will be the left or right binding and an identical width compositing process will be hereafter performed in this case in the procedure shown in [S105 thru/or S112] drawing 11. The state after a double-sided print is shown in (a) among drawing 24. What is necessary is to rotate a record paper, for example, just

to form the binding hole H in the left end of P1 and P2, as shown in (b) among the figure when filing and using for a binder.

[0062]When it is setting out detachable by S50 of drawing 7, it progresses to S113 of drawing 12, and it is judged whether a binding position is upper binding. The record paper used in this case is longwise so that clearly from the flow chart of drawing 7. If a binding position is upper binding in S113, then if it judges whether there is lateral writing or specification of vertical writing (S114) and there is no specification, in order to correspond in lateral-writing mode, it progresses to S116. On the other hand, if there is specification by S114, next if it judges whether it is lateral writing (S115) and is lateral writing, an identical width compositing process will be hereafter performed in a procedure as S116 thru/or S122 show to a flow chart. The state after a double-sided print is shown in (a) among drawing 25. What is necessary is to divide a record paper, to separate by a line and just to form the binding hole H in the upper bed of each piece of separation, as shown in (b) among the figure when filing and using for a binder.

[0063]If it is vertical writing in S115, an identical width compositing process will be hereafter performed in a procedure as shown in S123 thru/or S129 of drawing 12. The state after a double-sided print is shown in (a) among drawing 26. What is necessary is to divide a record paper, to separate by a line and just to form the binding hole H in the upper bed of each piece of separation, as shown in (b) among the figure when filing and using for a binder.

[0064]If it is not upper binding in S113, it will progress to S130 of drawing 13, and the control section 1 will judge whether a binding position is the left binding. It will become right binding, if it is a picture containing a character string, it is usually lateral writing and it is the left binding and vertical writing. If it is the left binding in S130, an identical width compositing process as S131 thru/or S137 showed to the flow chart will be hereafter performed using a longwise record paper. The state after a double-sided print is shown in (a) among drawing 27. What is necessary is to use a record paper as 2 chip boxes, and just to form the binding hole H in the left end of each P1, as shown in (b) among the figure when filing and using for a binder.

[0065]Since it is right binding if a binding position is not the left binding in S130, an identical width compositing process as S138 thru/or S144 showed to the flow chart is hereafter performed using a longwise record paper. The state after a double-sided print is shown in (a) among drawing 28. What is necessary is to use a record paper as 2 chip boxes, and just to form the binding hole H in the right end of each P1, as shown in (b) among the figure when filing and using for a binder.

[0066]If it is not setting out detachable by S50 of drawing 7, it will progress to S146 of

drawing 14, and the control section 1 will judge whether a binding position is upper binding. It judges whether it will be lateral writing, if it progresses to S149 and there is specification, in order to process in lateral-writing mode, if it is upper binding, then if it judges whether there is any specification of vertical writing or lateral writing (S147) and there is no specification, and if a decision result is yes, it will progress to S149.

[0067]A longwise record paper is used and an identical width compositing process is performed in a procedure as shown in the flow chart S149 thru/or S155. The state after a double-sided print is shown in (a) among drawing 29. What is necessary is just to file, without providing and separating the binding hole H to the upper bed of a record paper, as shown in (b) among the figure when filing and using for a binder.

[0068]Since it is vertical writing if it is not lateral writing in S148, an identical width compositing process is hereafter performed in a procedure as S156 thru/or S162 showed to the flow chart. The state after a double-sided print is shown in (a) among drawing 30. What is necessary is just to file, without providing and separating the binding hole H to the upper bed of a record paper, as shown in (b) among the figure when filing and using for a binder.

[0069]If it is not upper binding in S146, it will progress to S163 of drawing 15, and it will be judged whether a binding position is the left binding. It becomes right binding, when the character string of lateral writing is usually included also in this case and the character string of the left binding and vertical writing is included. If it is the left binding in S163, an identical width compositing process will be hereafter performed in a procedure as S164 thru/or S171 showed to the flow chart. The state after a double-sided print is shown in (a) among drawing 31. What is necessary is to form the binding hole H in the left end of a record paper, and just to file, without separating, as shown in (b) among the figure when filing and using for a binder.

[0070]Since it is right binding if it is not the left binding in S163, an identical width compositing process is hereafter performed in a procedure as S172 thru/or S179 showed to the flow chart. The state after a double-sided print is shown in (a) among drawing 32. What is necessary is to form the binding hole H in the right end of a record paper, and just to file, without separating, as shown in (b) among the figure when filing and using for a binder.

[0071]Next, the half print processing in S26 grade of drawing 4 is explained. As shown in the flow chart of drawing 33, when it responds in the existence of the paper size for starting half print processing, and binding position specification, the direction of a reception picture, etc., the procedure of a division is the same as that of the time of the start of the identical width compositing process fundamentally shown in drawing 7.

Therefore, the explanation which gave the suffix "a" to the corresponding steps S41 thru/or S50, and overlapped with them is omitted here.

[0072]If it is upper binding in S45a of drawing 33, it will progress to S51a of drawing 34, and the control section 1 will perform half print processing as S51a thru/or S59a showed to the flow chart hereafter. With the contents of processing in the corresponding steps S51 thru/or S59 in drawing 8, although the contents of processing in S51a thru/or S59a are fundamentally the same, By the half print processing of drawing 34, it is different to having combined the picture of two sheets each and having printed on the surface and the rear face of the record paper in the identical width compositing process of drawing 8, at the point which records the surface picture and back surface image in the double-sided picture of one sheet on the field of each 1/2 of the surface of a record paper, and a rear face.

[0073]That is, when half print processing is performed in the procedure of drawing 34, the surface picture and back surface image in the double-sided picture of one sheet are respectively recorded on the field of P1 and P2 in drawing 17, and the field of P3 and P4 becomes blank. When filing and using for a binder, a record paper can be separated by the pause line of (a) among drawing 17, and only 1/2 field where P1 and P2 were recorded can be used, for example. In this case, the 1/2 remaining fields of a record paper are blank slates, and using for the further record is also possible.

[0074]The procedure of the half print processing corresponding to the identical width compositing process shown in each flow chart of drawing 9 thru/or drawing 15 is respectively shown in drawing 35 thru/or drawing 41. Also in this case, in each half print processing, only record of P1 and P2 in a corresponding identical width compositing process is performed, and the field of P3 and P4 becomes blank. Here, the explanation which gave the number which added the suffix "a" to the number of the step [be / in each flow chart of each identical width compositing process / it / under / flow chart / of each half print processing / correspondence], and overlapped with it is omitted.

[0075]The correspondence relation of the flow chart which shows the procedure of the flow chart which shows the procedure of each identical width compositing process in the following table 1, the drawing in which the state where the double-sided print was carried out after each identical width compositing process is shown, and each half print processing is shown by drawing numbers. What is necessary is just to think that the field of P3 and P4 is blank in the drawing in which the printed state after a corresponding identical width compositing process is shown as it is the above-mentioned although the drawing in which the printed state after half print processing is shown is

omitted.

[0076]

[Table 1]

[0077]

[Effect of the Invention]As explained above, the communication terminal device of claim 1 of this invention, While having a line connection part linked to a communication line, an image memory which stores the picture received via the communication line, and the Records Department which records the picture in an image memory on a record paper. When a double-sided picture is received, while making the reception picture of plurality [page / 1st] of a record paper record. Since it has a control section on which two or more of other reception pictures corresponding to the reception picture of the above-mentioned plurality [page / 2nd] of the record paper concerned are made to record, For example, the received double-sided picture can be recorded promptly, without producing a time lag by recording a reception picture on both sides of the record paper of bigger size than the record paper concerned, when the record paper of the size corresponding to the size of a reception picture does not exist. In that case, there is an advantage which can use a record paper efficiently by recording two or more reception pictures on both sides of the above-mentioned record paper respectively.

[0078]The record section of each reception picture [in / on the composition of claim 1, and / in the communication terminal device of claim 2 / the 1st page]. Since the record section in the 2nd page of other reception pictures corresponding to the reception picture concerned corresponds mutually and is a thing, after making two or more reception pictures record on both sides of a record paper respectively, the advantage which can separate and use a record paper for each reception picture of every is.

[0079]Two or more reception pictures in which the communication terminal device of claim 3 is recorded on the 1st page or the 2nd above-mentioned page in the composition of claim 1 are the things containing the reception picture in which sizes differ, Thus, by recording several reception pictures in which sizes differ on the record paper of one sheet, much more effective use of a record paper can be aimed at.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]The block lineblock diagram showing the facsimile machine concerning an embodiment of the invention.

[Drawing 2]The explanatory view showing the state where combined two or more double-sided pictures as occasion demands with the above-mentioned facsimile machine, and it printed on both sides of the record paper.

[Drawing 3]The flow chart which shows the procedure which chooses a record paper according to the width of a reception picture, and is recorded on both sides when the above-mentioned facsimile machine receives a double-sided picture.

[Drawing 4]The flow chart which shows the procedure of performing A3 width processing when the above-mentioned facsimile machine receives a double-sided picture.

[Drawing 5]The flow chart which shows the procedure of performing B4 width processing when the above-mentioned facsimile machine receives a double-sided picture.

[Drawing 6]The flow chart which shows the procedure of performing A4 width processing when the above-mentioned facsimile machine receives a double-sided picture.

[Drawing 7]facing performing an identical width compositing process at the time of reception of the above-mentioned double-sided picture, and responding to whether it is setting out in which the existence of binding position specification and separation are possible -- a case -- dividing -- a procedure -- being shown -- a flow chart .

[Drawing 8]The above-mentioned flow chart as for which a case shows the procedure of the predetermined identical width compositing process after a division.

[Drawing 9]The above-mentioned flow chart as for which a case shows the procedure of other identical width compositing processes after a division.

[Drawing 10]The above-mentioned flow chart as for which a case shows the procedure of the identical width compositing process of further others after a division.

[Drawing 11]The above-mentioned flow chart as for which a case shows the procedure of

the identical width compositing process of further others after a division.

[Drawing 12]The above-mentioned flow chart as for which a case shows the procedure of the identical width compositing process of further others after a division.

[Drawing 13]The above-mentioned flow chart as for which a case shows the procedure of the identical width compositing process of further others after a division.

[Drawing 14]The above-mentioned flow chart as for which a case shows the procedure of the identical width compositing process of further others after a division.

[Drawing 15]The above-mentioned flow chart as for which a case shows the procedure of the identical width compositing process of further others after a division.

[Drawing 16]The explanatory view showing the Records Department in the above-mentioned facsimile machine.

[Drawing 17]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the left-hand side of drawing 8.

[Drawing 18]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the right-hand side of drawing 8.

[Drawing 19]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the left-hand side of drawing 9.

[Drawing 20]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the right-hand side of drawing 9.

[Drawing 21]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the left-hand side of drawing 10.

[Drawing 22]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the right-hand side of drawing 10.

[Drawing 23]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the left-hand side of drawing 11.

[Drawing 24]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the right-hand side of drawing 11.

[Drawing 25]The explanatory view showing the state after the double-sided print at the

time of performing an identical width compositing process in the procedure on the left-hand side of drawing 12.

[Drawing 26]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the right-hand side of drawing 12.

[Drawing 27]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the left-hand side of drawing 13.

[Drawing 28]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the right-hand side of drawing 13.

[Drawing 29]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the left-hand side of drawing 14.

[Drawing 30]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the right-hand side of drawing 14.

[Drawing 31]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the left-hand side of drawing 15.

[Drawing 32]The explanatory view showing the state after the double-sided print at the time of performing an identical width compositing process in the procedure on the right-hand side of drawing 15.

[Drawing 33]facing performing half print processing at the time of reception of the above-mentioned double-sided picture, and responding to whether it is setting out in which the existence of binding position specification and separation are possible -- a case -- dividing -- a procedure -- being shown -- drawing 7 -- corresponding -- a flow chart .

[Drawing 34]The flow chart which shows the procedure of the half print processing corresponding to the identical width compositing process of drawing 8.

[Drawing 35]The flow chart which shows the procedure of the half print processing corresponding to the identical width compositing process of drawing 9.

[Drawing 36]The flow chart which shows the procedure of the half print processing corresponding to the identical width compositing process of drawing 10.

[Drawing 37]The flow chart which shows the procedure of the half print processing corresponding to the identical width compositing process of drawing 11.

[Drawing 38]The flow chart which shows the procedure of the half print processing corresponding to the identical width compositing process of drawing 12.

[Drawing 39]The flow chart which shows the procedure of the half print processing corresponding to the identical width compositing process of drawing 13.

[Drawing 40]The flow chart which shows the procedure of the half print processing corresponding to the identical width compositing process of drawing 14.

[Drawing 41]The flow chart which shows the procedure of the half print processing corresponding to the identical width compositing process of drawing 15.

[Description of Notations]

1 Control section

3a Page memory

4 Image memory

7 NCU (line connection part)

11 Reading section

12 Records Department

15 Communication line

[Translation done.]

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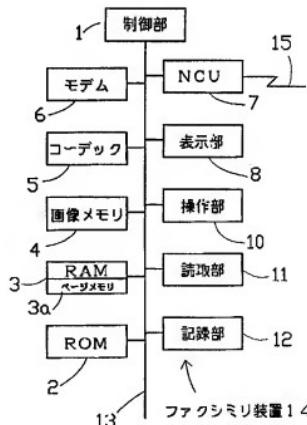
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(54)【発明の名称】 通信端末装置

(57)【要約】

【課題】 両面画像の受信時に受信画像に対応するサイズの記録用紙が切れていても、他のサイズの用紙を用いて受信画像を記録できる通信端末装置を提供すること。
【解決手段】 通信回線15に接続する回線接続部7と、通信回線15を介して受信した画像を格納する画像メモリ4と、画像メモリ4内の画像を記録用紙に記録する記録部12とを備えるとともに、両面画像を受信した際に記録用紙の第1面に複数の受信画像を記録させる一方、当該記録用紙の第2面上に上記複数の受信画像に対応する他の複数の受信画像を記録させる制御部1を備えた通信端末装置。



【特許請求の範囲】

【請求項1】 通信回線に接続する回線接続部と、通信回線を介して受信した画像を格納する画像メモリと、画像メモリ内の画像を記録用紙に記録する記録部とを備えるとともに、両面画像を受信した際に記録用紙の第1面上に複数の受信画像を記録させる一方、当該記録用紙の第2面上に上記複数の受信画像に対応する他の複数の受信画像を記録させる制御部を備えたことを特徴とする通信端末装置。

【請求項2】 第1面における各受信画像の記録領域と、当該受信画像に対応する他の受信画像の第2面における記録領域とが互いに対応していることを特徴とする請求項1記載の通信端末装置。

【請求項3】 上記第1面又は第2面上に記録される複数の受信画像はサイズの異なる受信画像を含むことを特徴とする請求項1記載の通信端末装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明は、ファクシミリ装置等の、通信回線を通して画像を送信する機能を有する通信端末装置に関するものである。

【0002】

【従来の技術】 従来、ファクシミリ装置において、両面画像の送信機能を備えたものが知られている。周知のように、この両面画像の送信機能とは、送信側の装置で両面記録の指定をして画像を送信すると、受信側の装置で受信画像を一旦画像メモリに格納した後、記録用紙の両面に記録する機能である。また、送信側の装置で両面画像の指定を行わなくとも、受信側の装置で受信画像を記録用紙の両面に記録するように設定することも可能である。

【0003】

【発明が解決しようとする課題】 ところが、両面画像の受信時に、受信側の装置で受信画像に対応するサイズの記録用紙が切れていた場合、記録用紙が補給されるまでの間は受信画像の記録を行えないため、記録処理に時間遅れが生じたり、未記録の画像が順次画像メモリに蓄積される結果、画像メモリの容量不足が生じて、新たな画像の受信が不可能となる等の問題を有していた。

【0004】

【課題を解決するための手段】 本発明は前記の課題を解決するため、両面画像の受信時に受信画像に対応するサイズの記録用紙が切れていても、他のサイズの用紙を用いて受信画像を記録できる通信端末装置を提供することを目的とする。

【0005】 そのため、本発明の請求項1の通信端末装置は、通信回線に接続する回線接続部と、通信回線を介して受信した画像を格納する画像メモリと、画像メモリ内の画像を記録用紙に記録する記録部とを備えるとともに、両面画像を受信した際に記録用紙の第1面上に複数の

受信画像を記録させる一方、当該記録用紙の第2面上に上記複数の受信画像に対応する他の複数の受信画像を記録させる制御部を備えたことを特徴とするものである。

【0006】 請求項2の通信端末装置は、請求項1の構成において、第1面における各受信画像の記録領域と、当該受信画像に対応する他の受信画像の第2面における記録領域とが互いに対応していることを特徴とするものである。

【0007】 請求項3の通信端末装置は、請求項1の構成において、上記第1面又は第2面上に記録される複数の受信画像はサイズの異なる受信画像を含むことを特徴とするものである。

【0008】

【発明の実施の形態】 以下、本発明の実施の形態を図面に基づいて説明する。図1に示すように、通信端末装置としてのファクシミリ装置1-4は、CPU(中央処理装置)等からなる制御部1、ROM(Read Only Memory)2、RAM(Random Access Memory)3、画像メモリ4、コードック5、モデム6、NCU(Network Control Unit)7(回線接続部)、表示部8、操作部10、読取部11、記録部12をバスライン13により互いに接続してなるものである。

【0009】 ROM2には、ファクシミリの送受信手順等、ファクシミリ装置1-4全体を制御するための制御プログラムが予め記憶されている。更に、この制御プログラムには、両面画像を受信した際に記録用紙の表面(第1面)に複数の受信画像を合成して記録させる一方、当該記録用紙の裏面(第2面)に上記複数の受信画像に対応する他の複数の受信画像を合成して記録させる手順が含まれている。一方、RAM3には、制御部1による制御に必要な各種データ、例えば、モデル6の通信速度等が一時記憶されるようになっている。また、RAM3の一部領域には、上記画像の合成等に際して、記録用紙の片面に記録すべき画像の記憶に使用するページメモリ3-aが設けられている。

【0010】 画像メモリ4はRAM等からなり、後述の読取部11で読み取られ、コードック5で符号化された後の画像データが記憶されるようになっている。画像メモリ4は、符号化済みの画像データを、原稿の数10頁乃至数100頁分程度蓄積できる記憶容量を備えている。

【0011】 コードック5は、読取部11で読み取られた、送信すべき画像データを順次符号化し、また、相手先端末から受信した符号化画像データを復号する役割を有する。モデル6は、送受信データの変復調、具体的には送信データを音声帯域信号に変調してNCU7を介して公衆電話回線網等の通信回線1-5に送出する一方、通信回線1-5からNCU7を介して上記相手先端末から受信した音声帯域信号をデジタル信号に復調する。

【0012】 NCU7は、通信回線1-5とのファクシ

ミリ装置14との接続を制御とともに、被呼端末のファクシミリ番号に応じたダイヤルパルスを送出する機能及び着信を検出する機能を備えている。図示しないが、表示部18は、例えば、液晶表示素子からなり、操作部10にはテンキーやスタートキー等の複数のキーが設けられている。

【0013】読取部11は、複数枚の原稿を順次読み取装置に供給できる原稿自動送り装置と、ラインセンサーやCCD(Charge Coupled Device)等からなる読み取装置を備え、ファクシミリ送信用の原稿の読み取を行なっている。また、記録部12は、複数の用紙カセットと、電子写真方式又はインクジェット方式等の印刷装置等を備え、相手先から受信した画像データを記録用紙の片面若しくは両面に記録(プリント)するようになっている。

【0014】上記構成において、ファクシミリ送信時には、不図示のスタートキーの操作に伴って原稿の画像(画像データ)が読み取られ、コードック5で符号化されて画像メモリ4に蓄積された後、モデル6で変調され、NCU7から通信回線15を通して相手先装置に送信される。

【0015】また、ファクシミリ受信時には、受信した画像がモデル6で復調されて画像メモリ4に蓄積された後、コードック5で復号され、記録部12により印刷される。なお、上記ファクシミリ装置14は複数機能をも有しており、詳述しないが、複写時には、画像読み取部1で読み取られた画像が、コードック5で符号化されて画像メモリ4に蓄積された後、再度復号されて記録部12で印刷される。

【0016】次に、両面画像の受信における記録部12での記録方法につき具体的に説明する。図2中(a)に示すように、例えば、A4Rサイズ(横長の画像又は記録用紙の場合に、サイズの後にRを付して示すことがある)の両面画像を受信した場合、A4Rサイズの記録用紙の両面に記録するのが基本である。

【0017】しかしながら、A4Rサイズの両面画像の受信時に、対するA4Rサイズの記録用紙が存在せず、2倍の大きさを有するA3サイズの記録用紙が存在する場合、図2中(b)に示すように、A3サイズの記録用紙の両面に受信画像を記録することができる。その場合、A4Rサイズの両面画像を2組以上受信すれば、2組宛の表面画像(図の表面画像1、2)と2組宛の裏面画像(図の裏面画像1、2)を各々合成してA3サイズの記録用紙の両面に記録することにより、記録用紙を効率的に使用することができる。

【0018】また、A4Rサイズの両面画像の受信時に、A4Rサイズの記録用紙もA3サイズの記録用紙も存在せず、B4サイズの記録用紙が存在する場合、同図中(c)に示すように、図2中(b)のように合成された表面及び裏面画像を各々所定の倍率で縮小し、B4サ

イズの記録用紙の両面に記録することもできる。

【0019】更に、図2中(d)に示すように、各々サイズ又は方向の異なる複数組の両面画像、例えば、A4及びA5Rの両面画像を、表面側及び裏面側で各々合成し、1枚の記録用紙の両面に記録することも可能である。その場合、各サイズの表面画像と対応するサイズの裏面画像とは、記録用紙の表面側及び裏面側における対応する領域に記録するのが好適である。このようにすれば、両面記録後に、個々の両面画像毎に銘で切り離して用いることができる。

【0020】図2中(b)乃至(d)において、隣接する画像の境界位置に区切り線を印刷するのが好ましく、係る区切り線は、記録用紙を各両面画像毎に切り離す場合に便宜である。なお、図2では、区切り線を記録用紙の両面に印刷した状態を示しているが、通常、区切り線は記録用紙の片面のみに印刷すれば十分である。

【0021】以下、ファクシミリ装置14で両面画像を受信する場合における制御部1による制御手順の詳細を、複数組の両面画像を合成して1枚の記録用紙に記録する手順を中心に説明する。なお、以下では、図2中(b)に示したように、同一サイズの画像同士を合成して記録用紙の両面に記録する場合を中心に説明するが、本発明は図2中(d)のように、異なるサイズの画像同士を合成して同一の記録用紙に記録する場合もその範囲に含むものである。

【0022】図3のフローチャートに示すように、制御部1は、まず、両面画像を受信したか否かを判定し(S1)、受信していないければ処理を終了する。両面画像を受信していれば、A3幅であるか否かを判定する(S2)。なお、ファクシミリ装置では、通常、受信画像を幅寸法で判別するので、A3幅には、A3サイズの記録用紙の他に、A4Rサイズの記録用紙も含まれる。

【0023】S2で、受信画像がA3幅であれば、後述するA3幅処理を実行(S3)した後、次頁があるか否かを判定する(S4)。次頁があればS2に戻って同一の処理を繰り返し、次頁がないければ、処理を終了する。一方、S2で受信した両面画像がA3幅でなければ、統いて、受信画像がB4幅であるか否かを判定し(S5)、B4幅であれば、後述のB4幅処理を実行(S6)した後、前記S4へ進む。S5で、受信画像がB4幅でなければ、受信画像はA4幅であるので、後述のA4幅処理を実行(S7)した後、前記S4へ進む。

【0024】次に、S2におけるA3幅処理の詳細を図4のフローチャートを参照しながら説明する。A3幅の両面画像を受信した場合、制御部1は、まず、表面及び裏面の長さが共にA4幅以下であるか否かを判定する(S10)。表面及び裏面の長さが共にA4幅以下でなければ、受信した画像は、A3サイズであるから、S11でA3サイズの記録用紙を用いて通常の両面プリントを実行した後、S14でプリントした頁の画像を画像メ

モリ4から消去し、処理を終了する。なお、ここで、通常の両面プリントとは、複数の画像を合成して記録用紙の表面若しくは裏面に印刷する処理を伴わず、1つ宛の画像を記録用紙の表面及び裏面に印刷することを意味する。

【0025】S10で、表面及び裏面の長さが共にA4幅以下であれば、受信した画像は、A4サイズ（実際は横長のA4Rサイズ）であるから、統いて、制御部1は、図示しないいずれかの用紙カセット内にA4サイズの記録用紙が存在するか否かを判定し（S12）、存在すれば、A4サイズの記録用紙を用いて通常の両面プリントを実行（S13）した後、前記S14に進む。

【0026】一方、S12でA4サイズの記録用紙が存在しなければ、受信画像の次頁以降にA3幅で表面及び裏面の長さが共にA4幅以下のものがあるか否かを判定する（S15）。なお、ここでは、便宜上、両面画像を構成する表面画像と裏面画像の対を1頁と見なしているので、次頁以降とは、次の表面及び裏面画像の対以降という意味である。

【0027】S15で次頁以降にA3幅で表面及び裏面の長さが共にA4幅以下のものがあれば、統いて、制御部1は、A3の記録用紙があるか否かを判定し（S16）、A3の記録用紙があれば、記録用紙をA3、倍率を等倍に設定（S17）した後、同一幅合成処理（S18）を実行し、その後、前記S14に進む。なお、同一幅合成処理については、後に詳述するが、図2中（b）に示したような合成処理である。

【0028】S16で、A3の記録用紙がなければ、統いて、B4の記録用紙があるか否かを判定し（S19）、B4の記録用紙があれば、記録用紙をB4、倍率をA3からB4への縮小に設定（S20）した後、S18へ進んで、前記同一幅合成処理を実行する。この場合、前記図2中（c）のように片面プリントされる。S19でB4の記録用紙がなければ、記録用紙無しエラー（S21）が発生しているので、例えば、その旨を表示部に表示し、処理を終了する。

【0029】S15で、次頁以降にA3幅で表面及び裏面の長さが共にA4幅以下のもののがなければ、前記同一幅合成処理は実行不可能である。この場合、S22へ進んで、A3の記録用紙があるか否かを判定し、A3の記録用紙があれば、記録用紙をA3、倍率を等倍に設定（S23）した後、半分プリント処理（S26）を実行した後、前記S14へ進む。この半分プリント処理については、以下で詳述するが、簡単に言えば、図2中（b）におけるA4R表面画像1及びA4R裏面画像1のみをプリントし、A4R表面画像2及びA4R裏面画像2の部分を空白にした状態である。

【0030】S22で、A3の記録用紙がなければ、次に、B4の記録用紙があるか否かを判定し（S24）、B4の記録用紙があれば、記録用紙をB4、倍率をA3

からB4への縮小に設定（S25）した後、半分プリント処理（S26）を実行した後、前記S14へ進む。この場合の半分プリント処理は、図2中（c）におけるA4R表面縮小画像1及びA4R裏面縮小画像1のみをプリントし、A4R表面縮小画像2及びA4R裏面縮小画像2の部分を空白にした状態である。

【0031】図3中S6のB4幅処理は、図5のフローチャートに示すように、使用する記録用紙のサイズが図4のA3幅処理の場合より1回りずつ小さくなる以外は、基本的に前記A3幅処理と同一の手順である。例えば、S10aでは、受信した両面画像の表面及び裏面の幅がB5幅以下であるか否かを判定しているが、判定がイエスであれば、受信画像はB5サイズ（具体的にはB5Rサイズ）、ノーであれば、受信画像はB4サイズとなる。ここでは、図5のフローチャートにおいて、図4のフローチャートの対応するステップの番号にサフィックス「a」を付して詳細な説明を省略する。

【0032】但し、図5におけるS27乃至S30の各ステップは、図4のフローチャートには対応するステップが存在しないので、以下、これらのステップについて説明する。S10aで受信した両面画像の表面及び裏面の幅がB5幅以下でなければ、受信画像はB4サイズであるので、S27において、B4サイズ以下の記録用紙があるか否かを判定する。B4サイズ以下の記録用紙があれば、S11aに進んで通常の両面プリントを実行する。この場合、記録用紙のサイズがB4であれば、等倍でプリントし、A4以下の記録用紙であれば、適当な倍率で縮小してプリントする。

【0033】S27でB4サイズ以下の記録用紙がなければ、制御部1は、A3サイズの記録用紙があるか否かを判定し（S28）、A3サイズの記録用紙がなければ、記録用紙無しエラー（S21a）となる。A3サイズの記録用紙があれば、記録用紙をA3、倍率をB4からA4への縮小に設定（S29）し、統いて、次頁以降にB4幅の頁があるか否かを判定（S30）する。次頁以降にB4幅の頁があれば、S18aに進んで、同一幅合成処理を実行する一方、次頁以降にB4幅の頁がなければ、S26aに進んで半分プリント処理を実行する。

【0034】図3中S7のA4幅処理の詳細を図6のフローチャートに示す。ここでも、使用する記録用紙が、図5のB4幅処理の場合に比べて1回りずつ小さくなるのみであるので、図5中の各ステップのサフィックス「a」を「b」に代えて詳細な説明を省略する。但し、図6のS31及びS32については、図5中に対応するステップが存在しないので、以下説明する。

【0035】S27bでA4サイズ以下の記録用紙が存在しない場合、制御部1は、S31でA3サイズの記録用紙があるか否かを判定し、なければ、S28bでB4サイズの記録用紙があるか否かの判定となる。A3サイズの記録用紙があれば、記録用紙をA3、倍率を等倍に

設定(S32)し、S30bに進む。

【0036】次に、図4のS18等における同一幅合成処理の詳細を図7以下の各フローチャートにより説明する。図7中S41において、制御部1は、使用すべき記録用紙がA4サイズ以下であるか否かを判定する。S41の判定結果がイエスであれば、統一して、縦長の記録用紙があるか否かを判定する(S42)。

【0038】S42で、縦長の記録用紙があれば、次に、縦じ代りが設定されてかつ縦じ位置(縦じ代の位置)が指定されているか否かを判定する(S43)。そして、縦じ位置が指定されていなければ、更に、切り離す設定であるか否かを判定する(S44)。ここで、切り離す設定(切り離し可能な設定)とは、図2中(b)乃至(d)に示したように、裏面側と裏面側の対応する画像を互いに対応する領域にプリントし、各両面画像毎に鉛で切り離すことが可能な状態に設定されていることをいう。これに対して、切り離さない設定の場合、表面側と裏面側の対応する画像を互いに対応する領域にプリントすることは必須ではなく、切り離す設定であるか否かにより、以下の処理内容が相違してくる。

【0039】S44で切り離す設定である場合、統いて、制御部1は縦じ位置が上縦じであるか否かを判定し(S45)、判定結果がイエスであれば、以下、図8のフローチャート中のS51へ進み、S45の判定結果がノーであれば、図8中のS60へ進む。また、S44の判定結果がノーであれば、以下、図9中S67へ進む。

【0040】S42で、用紙カセット内にA4サイズ以下でかつ縦長の記録用紙が存在しなければ、記録用紙は横長となる。この場合、S46に進んで、縦じ位置指定があるか否かを判定し、イエスであれば、統いて、切り離す設定であるか否かを判定する(S47)。切り離す設定であれば、以下、図10のS79へ進み、切り離す設定でなければ、以下、図11のS96へ進む。また、S46で縦じ位置指定がない場合、図10のS80へ進む。

【0041】S41で、記録用紙がA4サイズ以下でなければ、S48へ進んで、受信画像が横長であるか否かを判定する。受信画像が横長であれば、S43に進んで、前記同一の処理を行う。S48で、受信画像が縦長であれば、S49に進み、縦じ位置指定があるか否かを判定する。縦じ位置指定があれば、統いて、制御部1は、切り離す設定であるか否かを判定し(S50)、切り離す設定であれば、以下、図12のS113へ進み、

切り離す設定でなければ、以下、図14のS146へ進む。また、S49で縦じ位置指定がない場合、図12のS114へ進む。

【0042】次に、図8以下の同一幅合成処理の詳細フローチャートの説明に移るが、その前に、本ファクシミリ装置14の記録部12の具体的な構成の一例を図16に基づいて説明する。記録部12は、受信画像等に対応したトナー像をその表面に形成した後、記録用紙16に転写する感光体12aと、各サイズ又は方向の異なる記録用紙16を収容した複数の用紙カセット12bと、両面記録時に矢印Aに沿った用紙搬送経路の途中で表面側への画像の記録済みの記録用紙16を一旦収容する中間トレイ12c等を備えている。

【0043】そして、裏面側への記録は、記録用紙16を感光体12aの上方を経由して矢印Bに沿って搬送しながら、感光体12aに対する記録用紙16の表裏を反転させた上で行われる。図16から明らかなように、記録用紙16の表面側への記録時は、記録用紙16は一端16a側を先頭として搬送され、裏面側への記録時には、記録用紙16は他端16b側を先頭として搬送される。従って、図16の構成の記録部12を用いた場合、表面側又は裏面側にいずれかの画像の上下を180°回転させない限り、記録用紙16の表面側と裏面側とで画像は互いに上下逆向きの状態でプリントされる。

【0044】以下、同一幅合成処理の詳細フローチャートを説明すると、前記図7のS45での判定結果が上縦じであれば、図8のS51に進み、2枚の同一幅の両面画像を上縦じに好適な態様で合成して1枚の記録用紙の両面にプリントする処理を開始する。以下では、簡単のため、1枚目の両面画像を構成する表面及び裏面画像を各々P1、P2、2枚目の両面画像を構成する表面及び裏面画像を各々P3、P4と呼ぶ。

【0045】S51では、1枚目の裏面画像P2を設定された縮小率でページメモリ3aの上半分に上合せで貼り付け、S52では、2枚目の表面画像P3を設定された縮小率でページメモリ3aの下半分に下合せで貼り付け、このようにして、S51及びS52で合成された画像を記録用紙16の表面側にプリントする(S53)。このプリント状態を図17中(a)の上側に示す。

【0046】同図から明らかなように、画像P3をページメモリ3aの上半分に上合せで貼り付けるとは、画像P2を記録用紙16の表面側の上半分の領域にプリントするに際して、上記上半分の領域の下端側に縦じ代を設けることを意味する。

【0047】また、画像P3をページメモリ3aの下半分に下合せで貼り付けるとは、画像P3を記録用紙16の表面側の下半分の領域にプリントするに際して、上記下半分の領域の上端側に縦じ代を設けることを意味する。更に、上記設定された縮小率には、1倍、つまり、等倍も含まれる。

【0048】図8のS54では、表面側への記録済みの記録用紙1の6の表裏を反転させた後、S55では、2枚目の裏面の画像P4を設定された縮小率でページメモリ3aの上半分に上合せて貼り付ける。統いて、S56でページメモリ3aの中心位置に主走査方向(図の左右方向)に区切り線を貼り付ける。

【0049】更に、S57では、1枚目の表面画像P1を設定された縮小率でページメモリ3aの下半分に下合せて貼り付ける。このようにして、S55乃至S57で合成された画像を記録用紙1の裏面側にプリント(S58)した後、記録用紙1を搬出する(S59)。裏面側のプリント状態を図17中(a)の下側に示す。なお、図17中(a)を含む対応する各図中に記録用紙の表面側及び裏面側へのプリント時における感光体12aに対する記録用紙の搬送方向、換算すれば、ページメモリ3aの先頭方向を各々矢印Cで示す。また、記録用紙の表面と裏面とを対応させて示す各図では、記録用紙を横向き(紙面に対して上下方向)に反転させた状態を示している。

【0050】このようにして両面プリントした記録用紙1を不図示のバインダに綴じて用いる場合、図17中(b)の左側に示すように、記録用紙1を区切り線で2つ折りにし、その上端部の綴じ代部分に、必要により、バインダ用の綴じ孔Hを設ければよい。

【0051】図17中(b)の左側の状態から、画像P1が記録された記録用紙1の1/2領域を上側に折り返すと、同図中央の状態となり、この状態から画像P3が記録された記録用紙1の下半分を上側に折り返すと、同図右側の状態となるので、上綴じにした場合に、各頁の画像の上下方向が揃うことになる。なお、図17中(b)では、記録用紙1を切り離さないで用いるものとしながら、記録用紙1を上記区切り線で上下に2分割し、各上端部の綴じ代に綴じ孔Hを設けて用いてもよい。

【0052】図7中S45で判定結果がノーの場合、綴じ位置は左綴じ又は右綴じとなり、この場合、図8のS60に進む。以下のS60乃至S66を経て、S58及びS59に至る各ステップでの処理内容は、フローチャートに示すのみで十分であるので、ここでは、詳述しないが、S59で排出された記録用紙1には、図18中(a)のように、1枚目及び2枚目の各裏面画像P2、P4が合成されて表面側にプリントされる一方、1枚目及び2枚目の各裏面画像P1、P3が合成されて裏面側にプリントされた状態となる。

【0053】なお、この場合、S60及びS61で2枚目及び1枚目の各裏面画像P4、P2を上下反転させているため、両記録後に表面側の合成画像P2、P4と裏面側の合成画像P1、P3の上下方向が揃うことになる。例えば、綴じ位置を左綴じとしてバインダに綴じる場合は、図18中(b)に示すように、記録用紙1を

区切り線で上下に2分割し、P1の左端に綴じ孔Hを設ければよい。

【0054】図7中S44で切り離し設定でなければ、図9中S67に進み、綴じ位置が上綴じか否かを判定する。上綴じであれば、以下、S68乃至S75を経てS58及びS59に至る各ステップで2枚の両面画像を同一幅で合成して記録用紙1の両面にプリントする処理を実行する。この場合、両面プリント後の記録用紙1以上の画像の配置関係は図9中(a)のようになる。バインダに綴じて用いる場合は、同図中(b)の左側に示すように、上端部の綴じ代に綴じ孔Hを設け、頁送りに際しては、同図中(b)の右側のように、記録用紙1全体を上端部で折り返せばよく、バインダに綴じた状態で表面側及び裏面側の画像の向きが揃うことになる。

【0055】一方、S67で上綴じでなければ、左又は右綴じであるから、S76に進み、S76乃至S78及びS71乃至S75を経てS58及びS59に至る各ステップで左又は右綴じ用の同一幅合成処理を実行する。この場合、両面プリント後の記録用紙1以上の画像の配置関係は図20中(a)のようになる。バインダに綴じて用いる場合は、同図中(b)に示すように、例えば、左綴じであれば、P1、P2の左端に綴じ孔Hを設ければよい。

【0056】図7のS42で縦長の記録用紙がなければ、横長の記録用紙を使用することになるが、統いて、制御部1は、綴じ位置指定があるか否かを判定し(S46)、綴じ位置指定があれば、統いて、切り離し可能な設定であるか否かを判定する(S47)。切り離し可能な設定であれば、図1のS79に進み、制御部1は、綴じ位置が上綴じであるか否かを判定する。

【0057】綴じ位置が上綴じであれば、次に、制御部1は、図21中(a)に示すように、同一幅で合成すべき2枚の両面画像の内の1枚目の裏面を設定された縮小率(等倍を含む)で270°回転させてページメモリ3aの左半分に左合せて貼り付ける(S80)。統いて、2枚目の表面を設定された縮小率で270°回転させてページメモリ3aの右半分に右合せて貼り付ける(S81)。その後、記録用紙の裏面に上記S80及びS81における合成画像をプリント(S82)した後、記録用紙を反転させる(S83)。

【0058】次に、S84乃至S86で記録用紙の裏面側に1枚目の表面画像と2枚目の裏面画像を合成して記録用紙切り線とともにプリントする。バインダに綴じて使用する際には、図21中(b)に示すように、記録用紙を90°回転させ、かつ2つ折りにした状態で上端部に綴じ孔Hを設ければよい。なお、頁を送る手順は、図17中(b)の場合と同一であるから、説明を省略する。また、図7のS46で綴じ位置指定がない場合、図10のS80へ進み、上綴じ扱いで同一幅合成処理を実行する。

【0059】S79で上綴じでなければ、左又は右綴じであるから、S87に進み、以下、S87乃至S93でフローチャートに示した通りの手順で同一幅合成処理が実行される。プリント後の状態を図22中(a)に示し、区切り線に沿って切り離し、例えば、P1の左端に綴じ孔Hを設けた状態を同図(b)に示す。

【0060】図7中S47で切り離し可能な設定でなければ、図11のS96へ進み、制御部1は、綴じ位置が上綴じであるか否かを判定する。上綴じであれば、以下、S97乃至S104でフローチャートに示した通りの手順で同一幅合成処理を実行し、横長の記録用紙の両面にプリントする。このプリント後の状態を図23中(a)に示す。なお、プリント後の記録用紙を90°回転させた後に、バインダに綴じて用いる方法(図23中(b))は、図19中(b)の場合と同一であるから、説明を省略する。

【0061】S96で上綴じでなければ、左又は右綴じであり、この場合、以下、図11中S105乃至S112に示す手順で同一幅合成処理を実行する。両面プリント後の状態を図24中(a)に示す。バインダに綴じて用いる場合、同図中(b)に示すように、記録用紙を回転させ、例えば、P1、P2の左端に綴じ孔Hを設ければよい。

【0062】図7のS50で切り離し可能な設定である場合、図12のS113へ進み、綴じ位置が上綴じであるか否かを判定する。なお、図7のフローチャートから明るかのように、この場合に使用する記録用紙は縦長である。S113で綴じ位置が上綴じであれば、統いて、横書き又は縦書きの指定があるか否かを判定し(S114)、指定がなければ、横書きモードで対応するため、S116へ進む。一方、S114で指定があれば、次に、横書きであるか否かを判定し(S115)、横書きであれば、以下、S116乃至S122でフローチャートに示す通りの手順で同一幅合成処理を実行する。両面プリント後の状態を図25中(a)に示す。バインダに綴じて用いる場合、同図中(b)に示すように、記録用紙を区切り線で切り離し、各切り離し片の上端に綴じ孔Hを設ければよい。

【0063】S115で縦書きであれば、以下、図12のS113乃至S129に示す通りの手順で同一幅合成処理を実行する。両面プリント後の状態を図26中(a)に示す。バインダに綴じて用いる場合、同図中(b)に示すように、記録用紙を区切り線で切り離し、各切り離し片の上端に綴じ孔Hを設ければよい。

【0064】S113で上綴じでなければ、図13のS130に進み、制御部1は綴じ位置が左綴じであるか否かを判定する。文字列を含む画像であれば、通常、横書きであれば左綴じ、縦書きであれば右綴じとなる。S130で左綴じであれば、以下、縦長の記録用紙を用いて、S131乃至S137でフローチャートに示した通

りの同一幅合成処理を実行する。両面プリント後の状態を図27中(a)に示す。バインダに綴じて用いる場合、同図中(b)に示すように、記録用紙を2つ折りにし、各P1の左端に綴じ孔Hを設ければよい。

【0065】S130で綴じ位置が左綴じでなければ、右綴じであるので、以下、縦長の記録用紙を用いて、S133乃至S144でフローチャートに示した通りの同一幅合成処理を実行する。両面プリント後の状態を図28中(a)に示す。バインダに綴じて用いる場合、同図中(b)に示すように、記録用紙を2つ折りにし、各P1の右端に綴じ孔Hを設ければよい。

【0066】図7のS50で切り離し可能な設定でなければ、図14のS146へ進み、制御部1は綴じ位置が上綴じであるか否かを判定する。上綴じであれば、統いて、縦書き又は横書きの指定があるか否かを判定し(S147)、指定がなければ、横書きモードで処理するためS149へ進み、指定があれば、横書きであるか否かを判定して、判定結果がイエスであればS149へ進む。

【0067】S149乃至S155では、縦長の記録用紙を使用し、フローチャートに示した通りの手順で同一幅合成処理を実行する。両面プリント後の状態を図29中(a)に示す。バインダに綴じて用いる場合、同図中(b)に示すように、記録用紙の上端に綴じ孔Hを設け、切り離さずに綴じればよい。

【0068】S148で横書きでなければ、縦書きであるので、以下、S156乃至S162でフローチャートに示した通りの手順で同一幅合成処理を実行する。両面プリント後の状態を図30中(a)に示す。バインダに綴じて用いる場合、同図中(b)に示すように、記録用紙の上端に綴じ孔Hを設け、切り離さずに綴じればよい。

【0069】S146で上綴じでなければ、図15のS163へ進み、綴じ位置が左綴じであるか否かを判定する。この場合も、通常、横書きの文字列を含む場合は左綴じ、縦書きの文字列を含む場合は右綴じとなる。S163で左綴じであれば、以下、S164乃至S171でフローチャートに示した通りの手順で同一幅合成処理を実行する。両面プリント後の状態を図31中(a)に示す。バインダに綴じて用いる場合、同図中(b)に示すように、記録用紙の左端に綴じ孔Hを設け、切り離さずに綴じればよい。

【0070】S163で左綴じでなければ、右綴じであるので、以下、S172乃至S179でフローチャートに示した通りの手順で同一幅合成処理を実行する。両面プリント後の状態を図32中(a)に示す。バインダに綴じて用いる場合、同図中(b)に示すように、記録用紙の右端に綴じ孔Hを設け、切り離さずに綴じればよい。

【0071】次に、図4のS26等における半分プリン

ト処理について説明する。図33のフローチャートに示すように、半分プリント処理を開始するに際しての用紙サイズ、絞り位置指定の有無及び受信画像の方向等に応じた場合分けの手順は基本的に図7に示した同一幅合成処理の開始時と同様である。従って、ここでは、対応するステップS41乃至S50にサフィックス「a」をして重複した説明を省略する。

【0072】図33のS45aで上級であれば、図34のS51aに進み、以下、制御部1はS51a乃至S59aでフローチャートに示した通りの半分プリント処理を実行する。S51a乃至S59aでの処理内容は、図8における対応するステップS51乃至S59での処理内容と基本的に同一であるが、図8の同一幅合成処理では、各2枚の画像を合成して記録用紙の表面及び裏面にプリントしたのに対し、図34の半分プリント処理では、記録用紙の表面及び裏面の各1/2の領域に1枚の両面画像における表面画像及び裏面画像を記録する点で相違する。

【0073】すなわち、図34の手順で半分プリント処理を実行した場合、図7におけるP1及びP2の領域に各1枚の両面画像における表面画像及び裏面画像が記録され、P3及びP4の領域は空白となる。パンダに縫じて用いる場合は、例えば、図17中(a)の区切

り線で記録用紙を切り離し、P1及びP2が記録された1/2領域のみを用いることができる。この場合、記録用紙の残りの1/2領域は白紙状態であり、更なる記録に用いることも可能である。

【0074】図9乃至図15の各フローチャートに示した同一幅合成処理に対応する半分プリント処理の手順を各々図35乃至図41に示す。この場合も、各半分プリント処理では、対応する同一幅合成処理におけるP1及びP2の記録のみを行い、P3及びP4の領域は空白となる。ここでは、各半分プリント処理のフローチャート中に、各同一幅合成処理の各フローチャート中の対応するステップの番号にサフィックス「a」を追加した番号を付して重複した説明を省略する。

【0075】以下の表1に、各同一幅合成処理の手順を示すフローチャート、各同一幅合成処理毎に両面プリントした状態を示す表面及び裏面半分プリント処理の手順を示すフローチャートの対応関係を図番同士で示す。なお、半分プリント処理後の印刷状態を示す図面は省略しているが、前述の通り、対応する同一幅合成処理後の印刷状態を示す図面において、P3及びP4の領域が空白であると考えればよい。

【0076】

【表1】

半分プリント処理	同一幅合成処理
フローチャート	フローチャート
図33	図7
図34	図8
図35	図9
図36	図10
図37	図11
図38	図12
図39	図13
図40	図14
図41	図15

【0077】

【発明の効果】以上説明したように、本発明の請求項1の通信端末装置は、通信回線に接続する回線接続部と、通信回線を介して受信した画像を格納する画像メモリと、画像メモリ内の画像を記録用紙に記録する記録部とを備えるとともに、両面画像を受信した際に記録用紙の第1面に複数の受信画像を記録させる一方、当該記録用紙の第2面に上記複数の受信画像に対応する他の複数の受信画像を記録させる制御部を備えたものであるから、例えば、受信画像のサイズに対応するサイズの記録用紙が存在しない場合、当該記録用紙より大きなサイズの記録用紙の両面に受信画像を記録することにより、時間遅れを生じさせることなく、受信した両面画像を迅速に記録することができるようになる。また、その際、上記記録用紙の両面に各々複数の受信画像を記録することにより、記録用紙を効率的に使用できる利点がある。

【0078】

請求項2の通信端末装置は、請求項1の構成において、第1面における各受信画像の記録領域と、当該受信画像に対応する他の受信画像の第2面における記録領域が互いに対応してものであるから、記録用紙の両面に各々複数の受信画像を記録させた後に、記録用紙を個々の受信画像毎に切り離して用いることができる利点がある。

【0079】請求項3の通信端末装置は、請求項1の構成において、上記第1面又は第2面に記録される複数の受信画像はサイズの異なる受信画像を含むものであり、このようにサイズの異なる複数の受信画像をも1枚の記録用紙に記録することにより、記録用紙の一層の有効利用を図ることができる。

【図1】簡単な説明

【図1】本発明の実施の形態に係るファクシミリ装置を示すブロック構成図。

【図2】上記ファクシミリ装置で必要により複数の両面画像を合成して記録用紙の両面にプリントした状態を示す。

す説明図。

【図3】上記ファクシミリ装置で両面画像を受信した際に、受信画像の幅に応じて記録用紙を選択し、両面に記録する手順を示すフローチャート。

【図4】上記ファクシミリ装置で両面画像を受信した際に、A3幅処理を実行する手順を示すフローチャート。

【図5】上記ファクシミリ装置で両面画像を受信した際に、B4幅処理を実行する手順を示すフローチャート。

【図6】上記ファクシミリ装置で両面画像を受信した際に、A4幅処理を実行する手順を示すフローチャート。

【図7】上記両面画像の受信時に同一幅合成処理を実行するに際して縦位置指定の有無や切り離し可能な設定であるか否かに応じて場合分けする手順を示すフローチャート。

【図8】上記場合分け後の所定の一同一幅合成処理の手順を示すフローチャート。

【図9】上記場合分け後の他の同一幅合成処理の手順を示すフローチャート。

【図10】上記場合分け後の更に他の同一幅合成処理の手順を示すフローチャート。

【図11】上記場合分け後の更に他の同一幅合成処理の手順を示すフローチャート。

【図12】上記場合分け後の更に他の同一幅合成処理の手順を示すフローチャート。

【図13】上記場合分け後の更に他の同一幅合成処理の手順を示すフローチャート。

【図14】上記場合分け後の更に他の同一幅合成処理の手順を示すフローチャート。

【図15】上記場合分け後の更に他の同一幅合成処理の手順を示すフローチャート。

【図16】上記ファクシミリ装置における記録部を示す説明図。

【図17】図8の左側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図18】図8の右側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図19】図9の左側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図20】図9の右側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図21】図10の左側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図22】図10の右側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図23】図11の左側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図24】図11の右側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図25】図12の左側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図26】図12の右側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図27】図13の左側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図28】図13の右側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図29】図14の左側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図30】図14の右側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図31】図15の左側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図32】図15の右側の手順で同一幅合成処理を実行した場合の両面プリント後の状態を示す説明図。

【図33】上記両面画像の受信時に半分プリント処理を実行するに際して縦位置指定の有無や切り離し可能な設定であるか否かに応じて場合分けする手順を示す図7に対応するフローチャート。

【図34】図8の同一幅合成処理に対応する半分プリント処理の手順を示すフローチャート。

【図35】図9の同一幅合成処理に対応する半分プリント処理の手順を示すフローチャート。

【図36】図10の同一幅合成処理に対応する半分プリント処理の手順を示すフローチャート。

【図37】図11の同一幅合成処理に対応する半分プリント処理の手順を示すフローチャート。

【図38】図12の同一幅合成処理に対応する半分プリント処理の手順を示すフローチャート。

【図39】図13の同一幅合成処理に対応する半分プリント処理の手順を示すフローチャート。

【図40】図14の同一幅合成処理に対応する半分プリント処理の手順を示すフローチャート。

【図41】図15の同一幅合成処理に対応する半分プリント処理の手順を示すフローチャート。

【符号の説明】

1 制御部

3a ページメモリ

4 画像メモリ

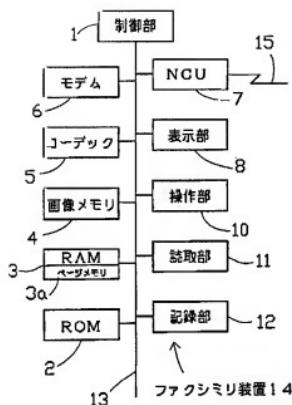
7 NCU(回線接続部)

11 読取部

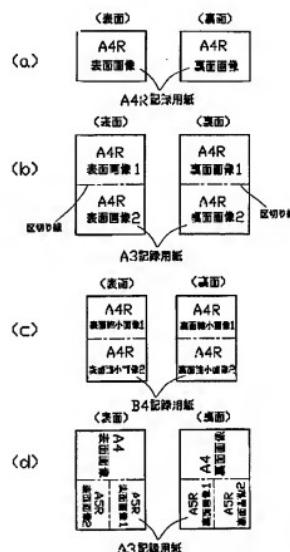
12 記録部

15 通信回線

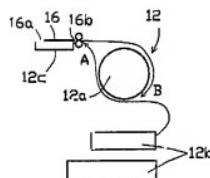
【図1】



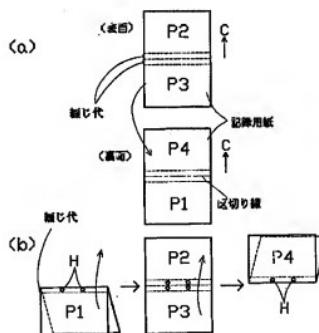
【図2】



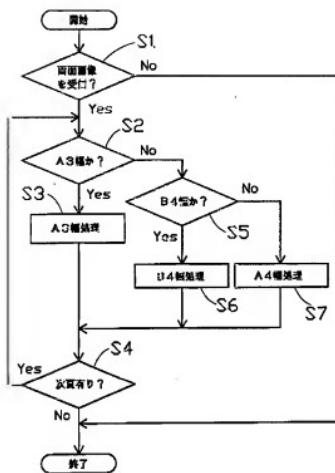
【図16】



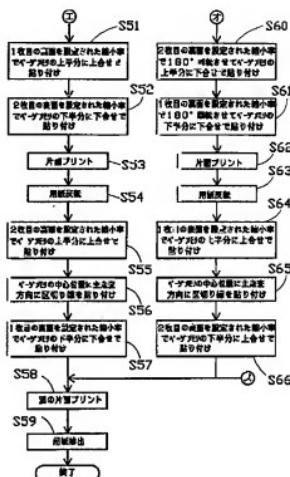
【図17】



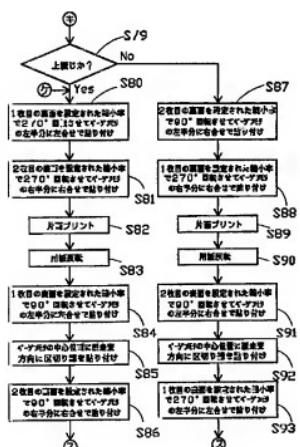
【図3】



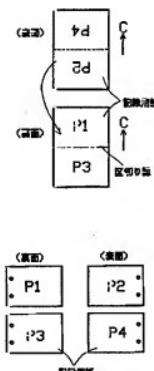
【図8】



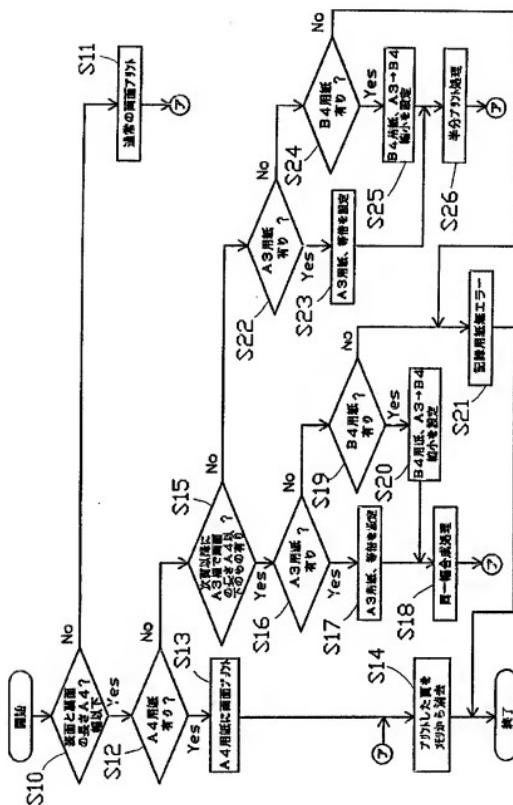
【図10】



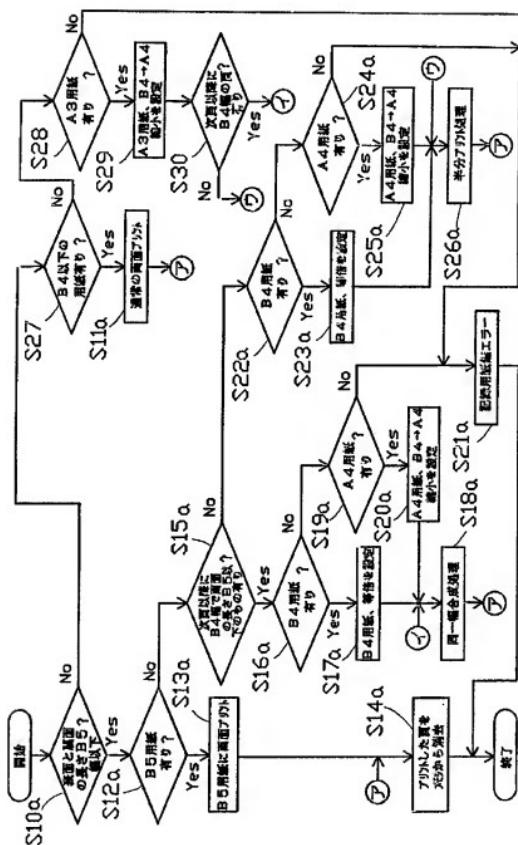
【図18】



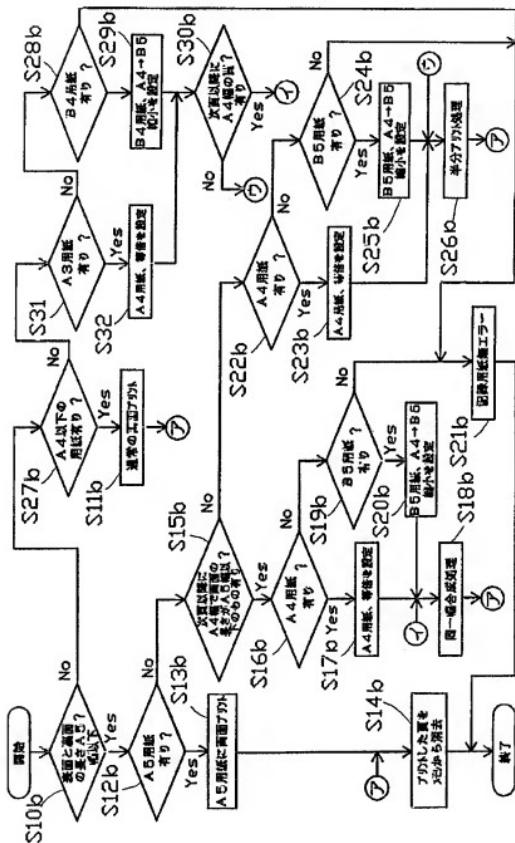
【四】



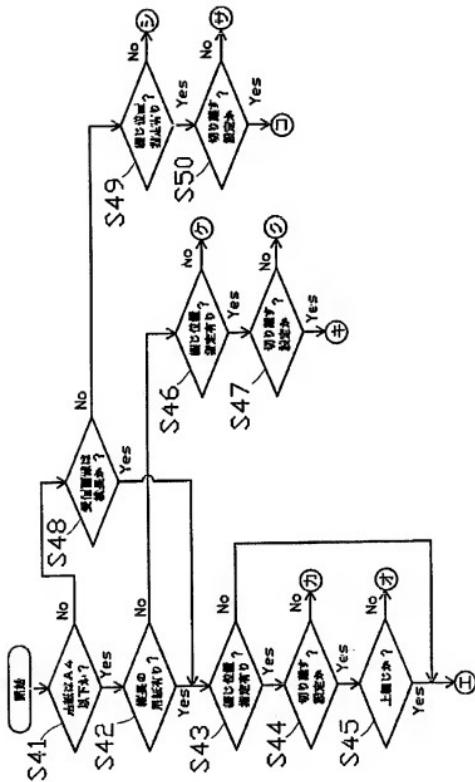
【图5】



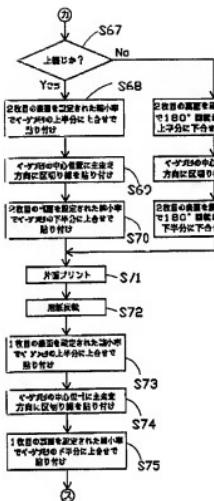
【図6】



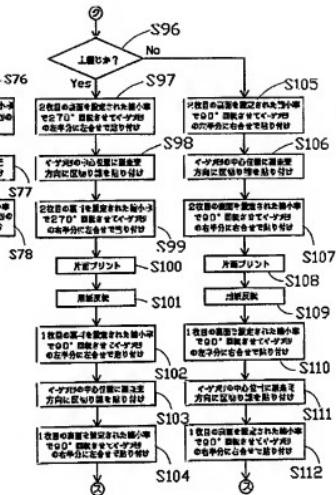
【図7】



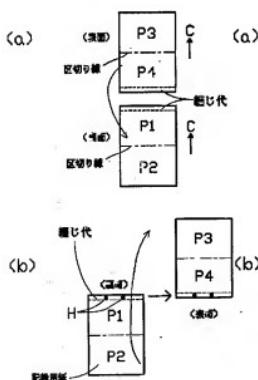
【図9】



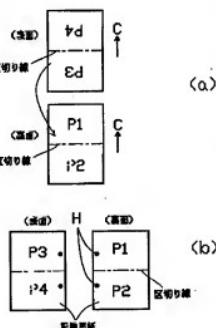
【図11】



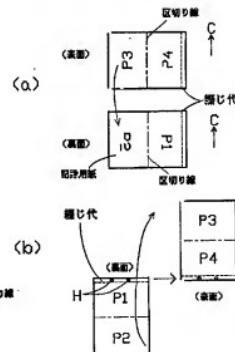
【図19】



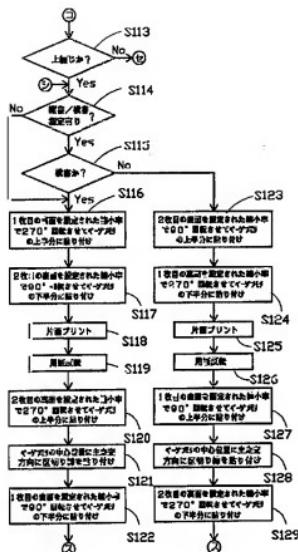
【図20】



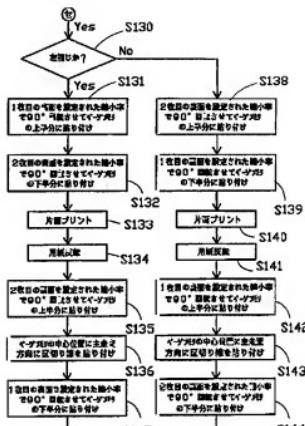
【図23】



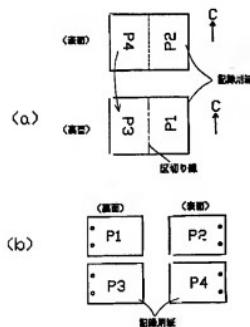
【図12】



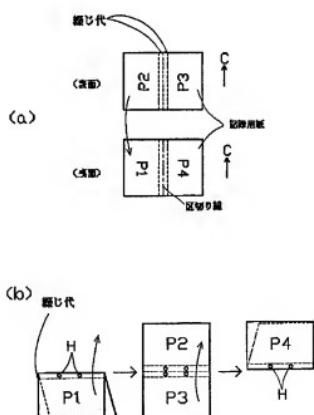
【図13】



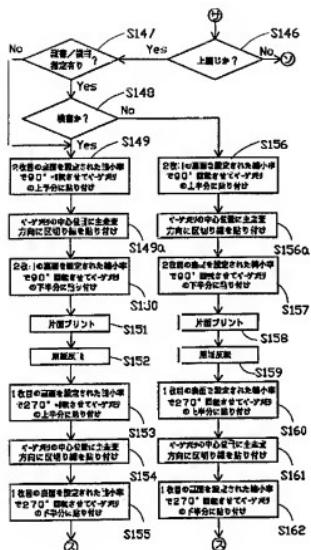
【図22】



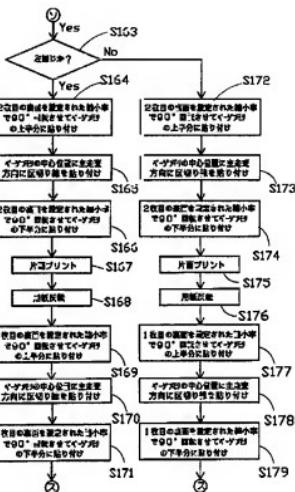
【図21】



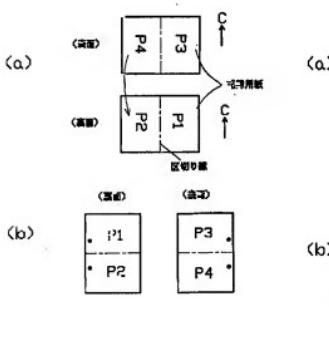
【图14】



【图15】

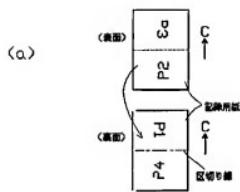


[图24]

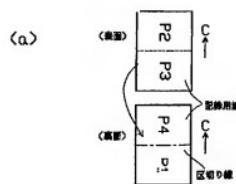


[图25]

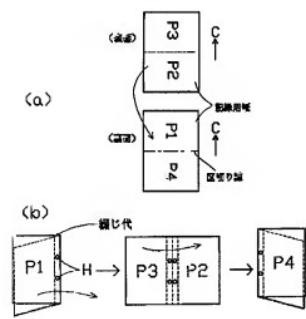
【図26】



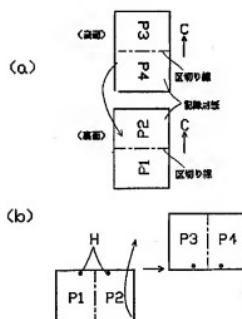
【図27】



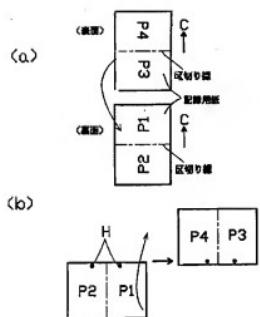
【図28】



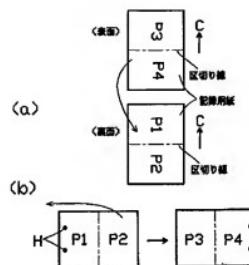
【図29】



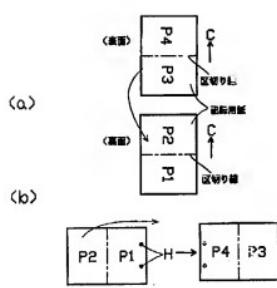
【図30】



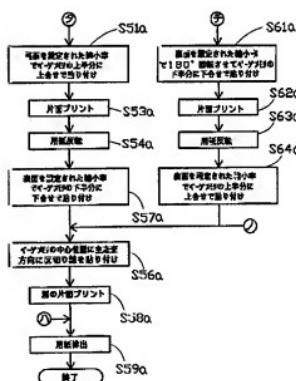
【図31】



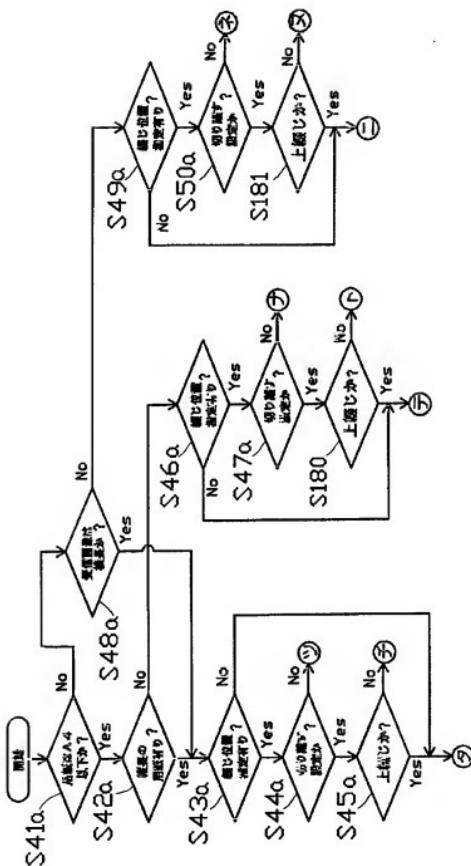
【図32】



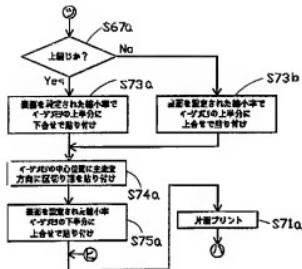
【図34】



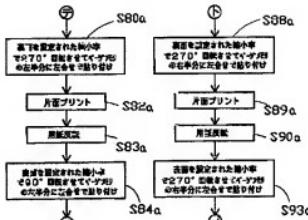
【図33】



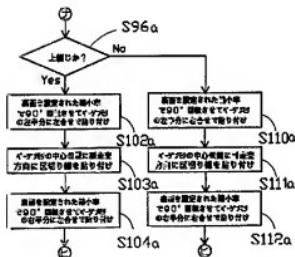
【図35】



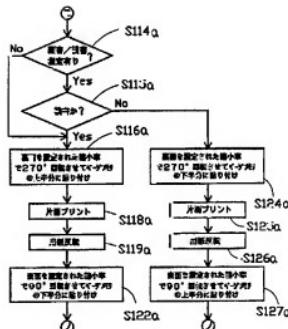
【図36】



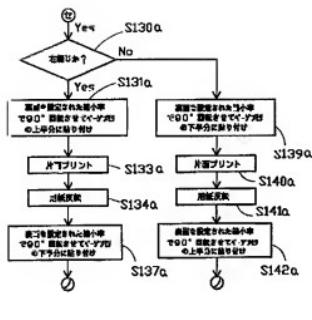
【図37】



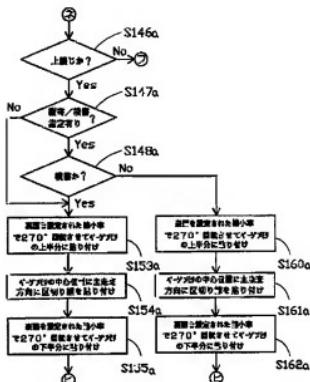
【図38】



【図39】



【図40】



[図41]

